

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

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1. An explosively operated tool for driving a fastener into a substrate such as steel or concrete, said tool comprising a housing, a barrel assembly mounted within the housing, and a piston within the barrel assembly and actuated upon firing of the tool to drive a fastener in the forward end of the barrel assembly into a substrate, wherein the barrel assembly is mounted for axial movement within the housing and co-operates with a mass mounted for rearwards movement relative to the housing in opposition to a biasing force to absorb recoil on firing of the tool, and a resetting mechanism for resetting the piston into a rear part of the barrel assembly after firing, said resetting mechanism being powered in response to displacement of said mass on recoil.

2. A tool according to claim 1, wherein the resetting mechanism comprises means for engaging the piston in a forward position in the barrel, and means for displacing the engagement means rearwardly to thrust the piston rearwardly, said displacement means comprising an energy source in which energy is stored as a result of displacement of the recoil mass upon recoil.

3. A tool according to claim 2, wherein the energy source comprises a spring in which potential energy is stored in response to displacement of the recoil mass, said potential energy suddenly being released to cause the piston to be propelled rearwardly.

4. A tool according to claim 3, wherein the recoil mass is propelled rearwardly against a strong resilient bias to absorb the recoil force and is then propelled forwardly by that bias, the spring associated with the resetting mechanism being charged with potential energy in response to the forwards movement of the recoil mass.

5. A tool according to any one of claims 2 to 4, wherein the engagement means comprises means for gripping the piston at its forward end portion when in its forward position within the barrel assembly.

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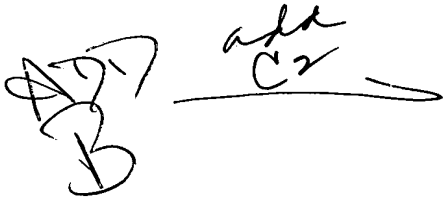
6. A tool according to claim 5, wherein the gripping means is interposed between forward and rear barrel sections of the barrel assembly.

7. A tool according to claim 5 or claim 6, wherein the gripping means comprise balls
5 arranged around the axis of the piston to engage a peripheral surface of the piston, said balls co-operating with an inclined surface to force the balls into gripping engagement with the piston upon rearwards movement of the gripping means relative to the piston.

8. A tool according to any one of claims 1 to 7, further comprising piston retention
10 means to retain the piston in its rearmost position after resetting, said retention means acting in response to rebound of the piston from its rearmost position as a result of the sudden thrust used to effect resetting.

9. A tool according to claim 8, wherein the retention means comprise pads adapted to
15 frictionally engage the piston.

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